

**ABSTRACT**

An apparatus and method for spectral dispersion compensation in an optical communication network are disclosed. In one embodiment, the invention comprises an optical medium having a signal distributed over a plurality of wavelengths, a demultiplexer adapted to receive the plurality of wavelengths and divide the plurality of wavelengths into individual wavelengths, and a plurality of dispersion compensation elements each adapted to receive a wavelength. The dispersion compensation elements alter the timing of each wavelength, where the plurality of dispersion compensation elements operates on all wavelengths simultaneously. The invention also comprises a multiplexer adapted to receive each individual wavelength and combine the individual wavelengths onto the optical medium.